

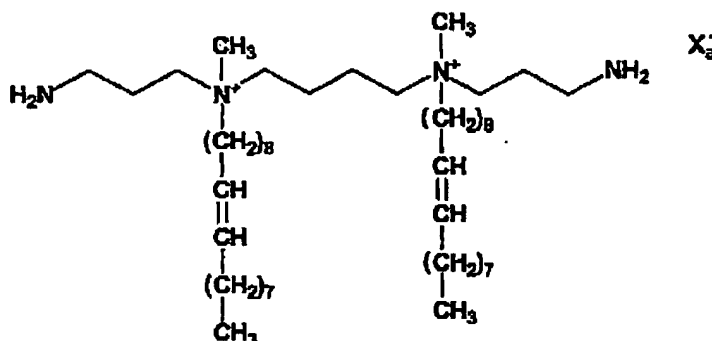
BEST AVAILABLE COPY**RECEIVED
CENTRAL FAX CENTER****FEB 25 2005**Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of the claims

1-9. (Canceled)

10. (Previously presented) A compound having the formula:

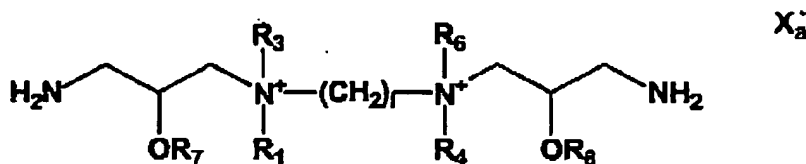


wherein

X^- is a physiologically acceptable anion; and a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion.

11. (Canceled)

12. (Currently amended) A compound having the formula:



wherein

X^- is a physiologically acceptable anion;

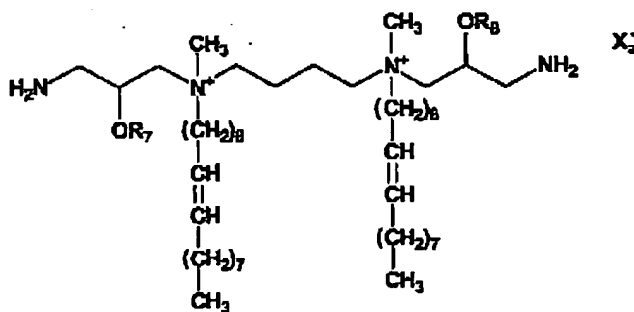
a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

R_1 , R_3 , R_4 , and R_6 , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, an alkynyl group, and an aryl group, wherein any one of R_1 , R_3 , R_4 , and R_6 are optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of R_1 , R_3 , R_4 , and R_6 , are straight-chain, branched, or cyclic alkyl, alkynyl, or alkenyl or aryl groups having from 8 to about 24 carbon atoms attached to each N and R_1 , R_3 , R_4 and R_6 may optionally be covalently linked with each other;

R_7 and R_8 are independently H or a carbohydrate; and

l is an integer from 1 to about 4.

13. (Previously presented) The compound as claimed in claim 12, which is:

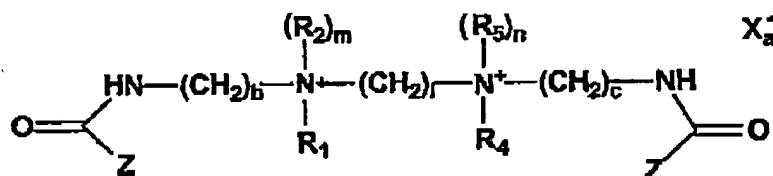


wherein R_7 and R_8 are independently H or a carbohydrate.

14. (Previously presented) The compound as claimed in claim 13, wherein R_7 and R_8 are H.

15. (Canceled)

16. (Currently amended) A compound having the formula:



wherein

R_1 , R_2 , R_4 and R_5 , independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, and an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of R_1 , R_2 , R_4 and R_5 are a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms attached to each N;

Z is selected from the group consisting of spermyl, spermidyl, amino acid, peptidyl, diaminoalkyl, and polyamine;

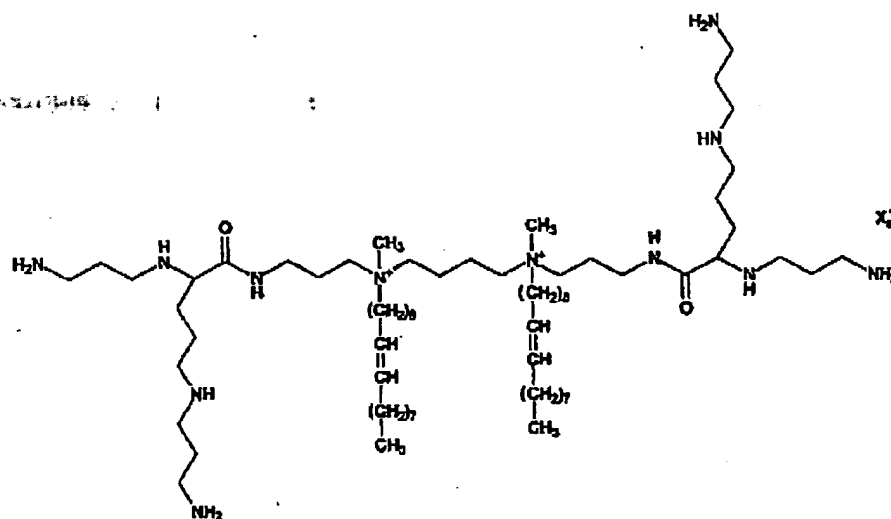
X^- is a physiologically acceptable anion;

m and n are 0 or 1;

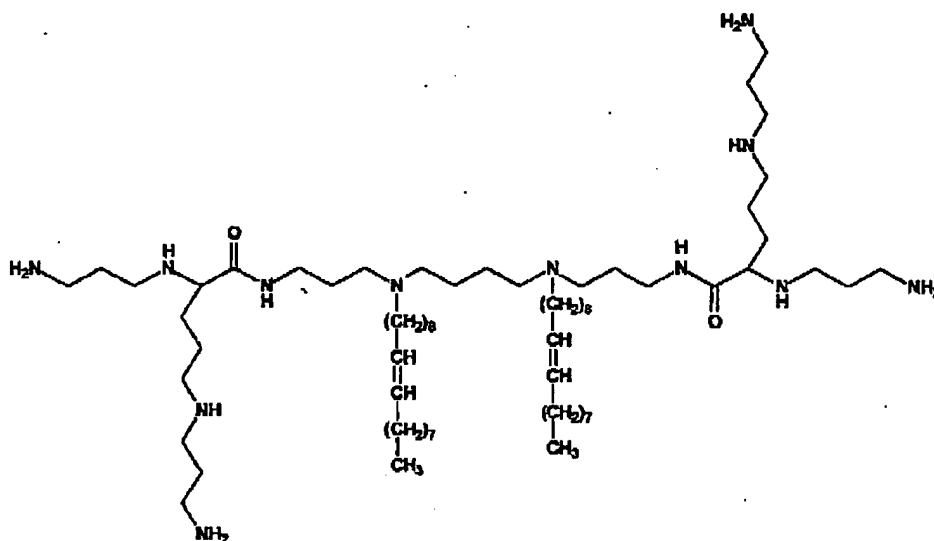
1, b and c are integers independently selected from 1 to about 4; and

a is the number of positive charges in the compound divided by the valence of the anion.

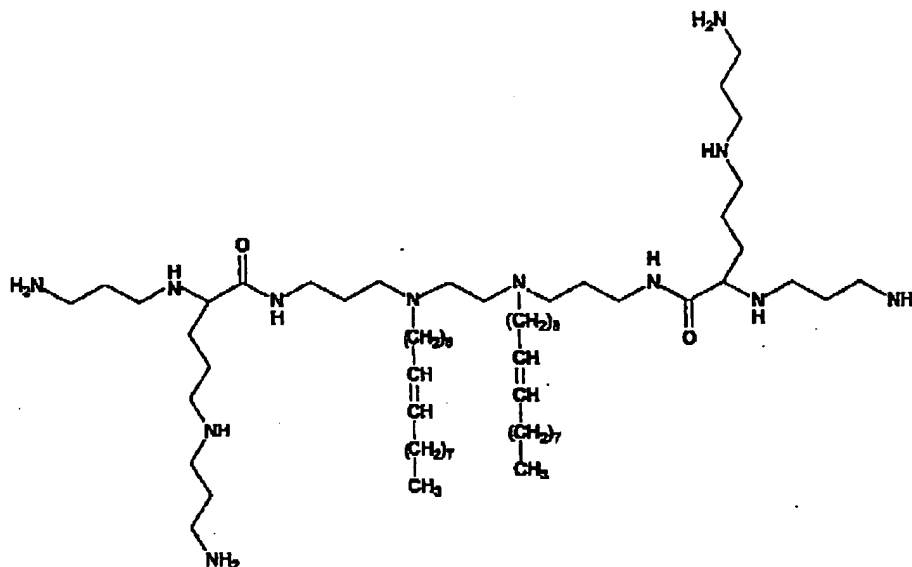
17. (Previously presented) The compound as claimed in claim 16, which is:



18. (Currently amended) The compound as claimed in claim 16, which is:

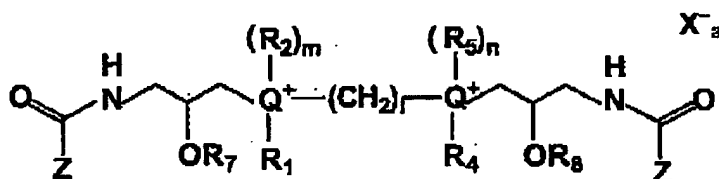


19. (Currently amended) The compound as claimed in claim 16, which is:



20. (Canceled)

21. (Currently amended) A compound having the formula:



wherein

Q is N;

X^- is a physiologically acceptable anion;

a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

R_1 and R_4 , independently of one another, are selected from the group, ~~independently of one another,~~ consisting of H, $-(CH_2)_p-D-Z$, an alkyl group, an alkyl ether group, an alkenyl group, an aryl group, and an alkyl or alkyl ether group substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group, R_1 and R_4 may optionally be covalently linked with each other, to form a cyclic moiety; at least one of R_1 and R_4 is a straight-chain, branched, or cyclic alkyl, alkenyl, or alkynyl ~~or aryl~~ group having from 8 to ~~about~~ 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

Z is selected from the group consisting of spermyl, spermidyl, aminoacid, peptidyl, diaminoalkyl, and polyamine;

D is N, O, S, or a bond;

R_7 and R_8 independently are H or a carbohydrate;

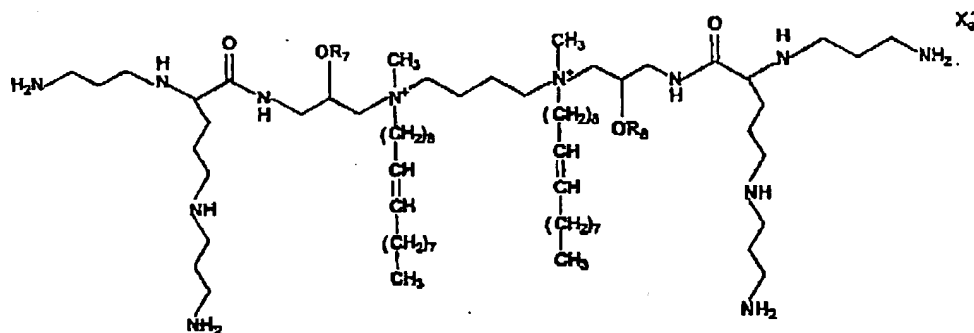
m and n are ~~0 or 1, when m is 1, the Q bonded to R_2 is positively charged and when n is 1 the Q bonded to R_5 is positively charged;~~

l is an integer selected from 1 to about 4; and

p is an integer from 1 to about 10.

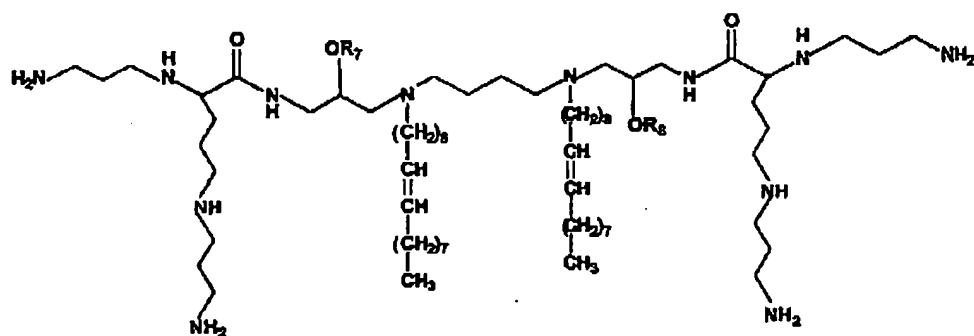
22. (Previously presented) The compound as claimed in claim 21 wherein R_7 and R_8 are H.

23. (Previously presented) The compound as claimed in claim 21 which is:



24. (Previously presented) The compound according to claim 23, wherein R_7 and R_8 are H.

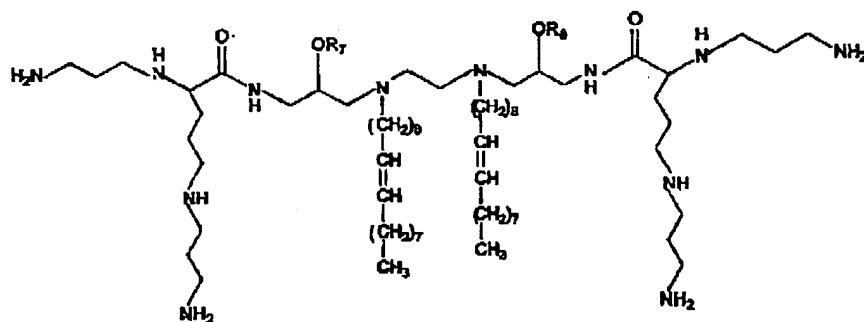
25. (Currently amended) The compound according to ~~claim 21~~, which is



wherein R_7 and R_8 independently are H or a carbohydrate.

26. (Previously presented) The compound as claimed in claim 25, wherein R_7 and R_8 are H.

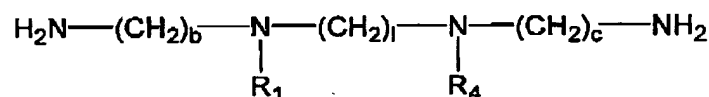
27. (Currently amended) The compound as ~~claimed in claim 21~~, which is



wherein R_7 and R_8 independently are H or a carbohydrate.

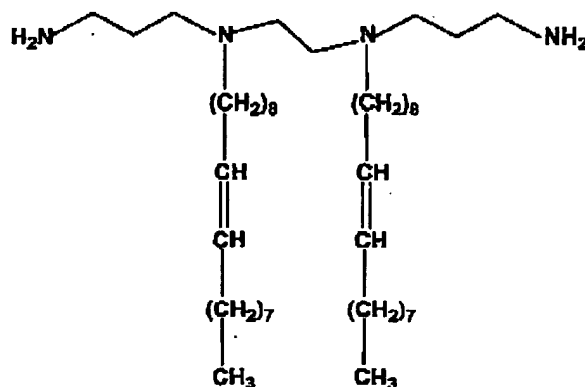
28. (Previously presented) The compound as claimed in claim 27, wherein R_7 and R_8 are H.

29. (Previously presented) A compound having the formula:

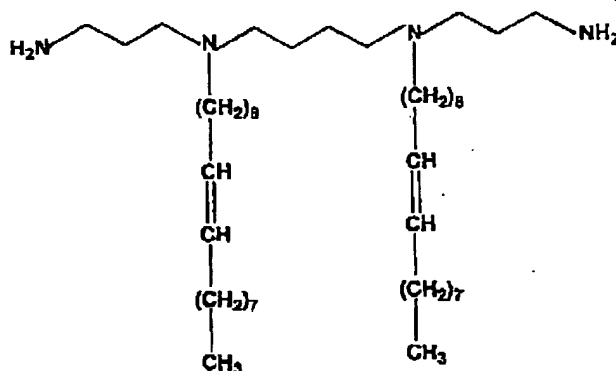


wherein each of R_1 and R_4 is a $-(\text{CH}_2)_8-\text{CH}=\text{CH}-(\text{CH}_2)_7-\text{CH}_3$ group; and l , b , and c are integers independently selected from 1 to about 4.

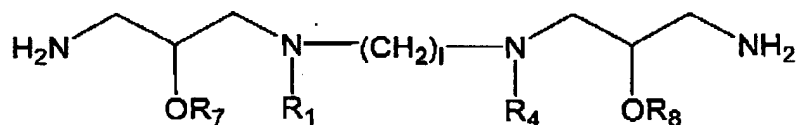
30. (Previously presented) The compound as claimed in claim 29, which is:



31. (Previously presented) The compound as claimed in claim 29, which is:



32. (Currently amended) A compound having the formula:



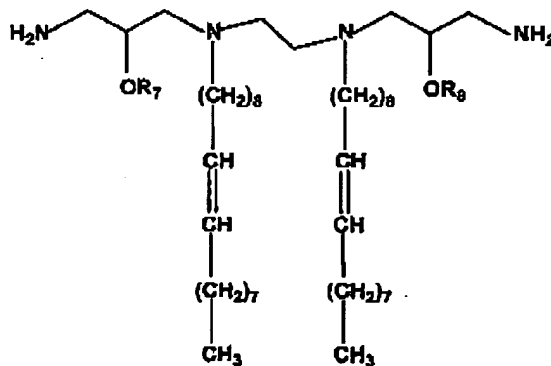
wherein

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, or alkynyl, ~~or aryl~~ group having ~~from about 8 to about 24~~ carbon atoms;

R_7 and R_8 are independently H or a carbohydrate; and

l is an integer independently selected from 1 to 4.

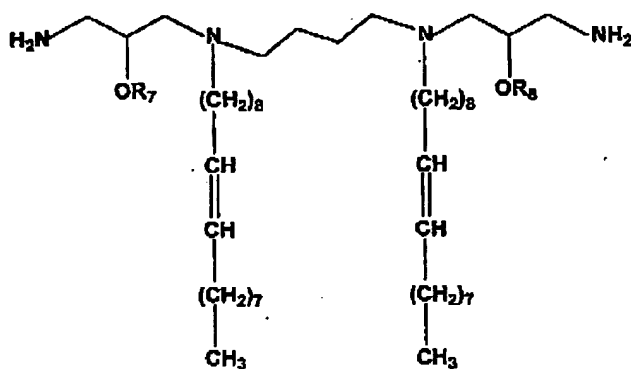
33. (Previously presented) The compound as claimed in claim 32, which is:



wherein R_7 and R_8 are independently H or a carbohydrate.

34. (Previously presented) The compound as claimed in claim 33, wherein R_7 and R_8 are H.

35. (Previously presented) The compound as claimed in claim 32, which is:

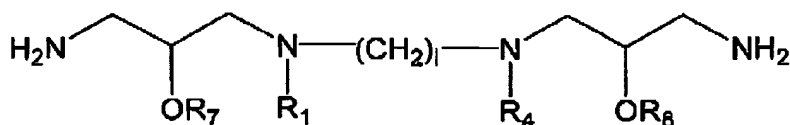


wherein R_7 and R_8 are independently H or a carbohydrate.

36. (Previously presented) The compound as claimed in claim 35, wherein R_7 and R_8 are H.

37. (Canceled)

38. (Previously presented) A compound having the formula:



wherein

l is 4,

R_1 and R_4 are straight-chain alkyl groups having 14 or 16 carbon atoms, ~~light-chain alkyl group;~~

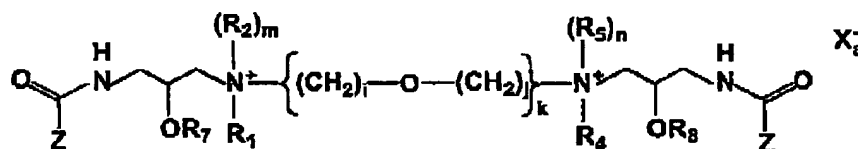
and

R_7 and R_8 are independently selected from H or a carbohydrate. ~~independently selected.~~

39. (Canceled)

40. (Previously presented) The compound as claimed in claim 38, wherein R_7 and R_8 are both H.

41. (Currently amended) A compound having the formula:



wherein

Z is selected from the group consisting of amine, spermyl, carboxyspermyl, guanidyl, spermidinyl, putricinyl, diaminoalkyl, pyridyl, piperidinyl, pyrrolidinyl, polyamine, amino acid, peptide and protein;

D is Q or a bond;

p is an integer from 1 to about 10;

R_1 and R_4 , independently of one another, are selected from the group consisting of H, $-(CH_2)_p-D-Z$, an alkyl group, an alkenyl group, an aryl group, an alkynyl group, and an alkyl ether group wherein any one of R_1 and R_4 are optionally substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group, R_1 and R_4 may optionally be covalently linked with each other to form a cyclic moiety; and at least one of

R_1 and R_4 is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 8 to about 24 carbon atoms; and

R_2 and R_5 , independently of one another, are selected from the group consisting of H, an alkenyl group, an alkynyl group, an aryl group and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide; an ester, a mercaptan, a urea, a thiourea, a guanidyl and a carbamoyl group;

R_7 and R_8 are independently H or a carbohydrate;

X^- is a physiologically acceptable anion;

a is the number of positive charges in the compound divided by the valence of the anion;

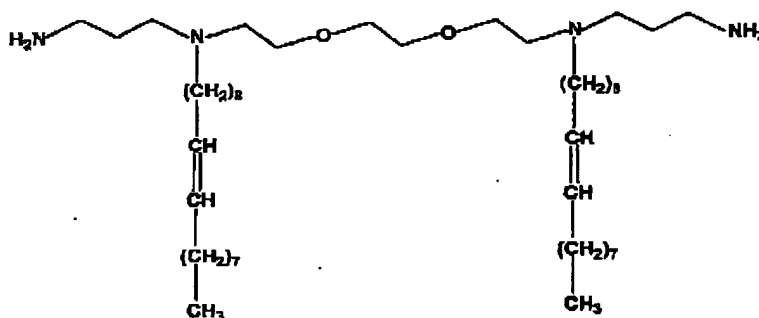
m and n are 0 or 1;

i and j are integers selected from 2 to about 3; and

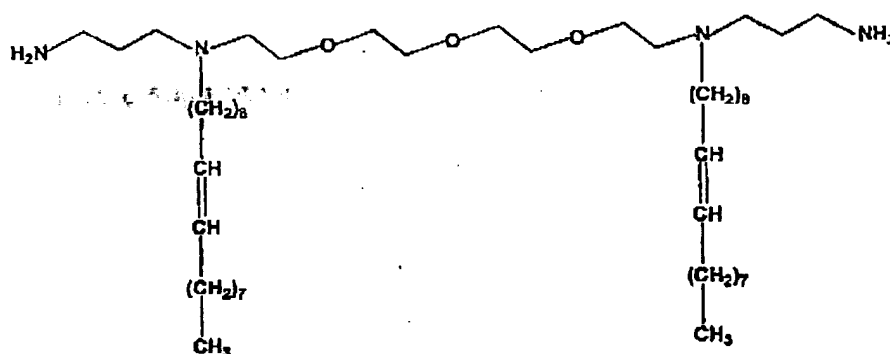
k is an integer selected from 1 to about 3.

42. (Canceled)

43. (Previously presented) A compound having the formula:

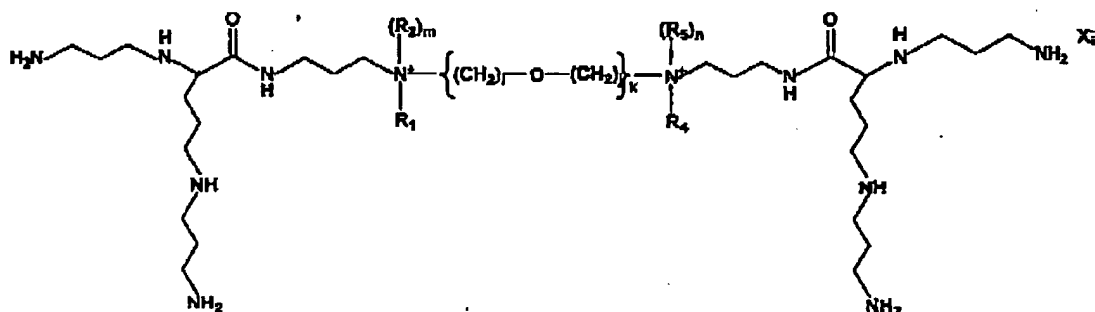


44. (Previously presented) A compound having the formula:



45. (Canceled)

46. (Currently amended) A compound having the formula:



wherein

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of a, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

X^- is a physiologically acceptable anion;

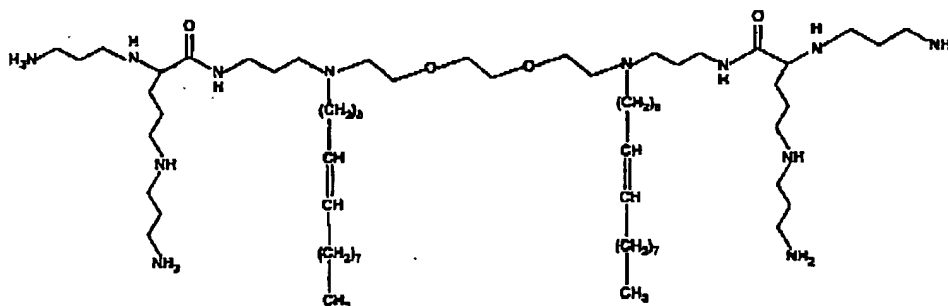
a is the number of positive charges in the compound divided by the valence of the anion;

m and n are 0 or 1, when m is 1, the N bonded to R_2 is positively charged and when n is 1, the N bonded to R_5 is positively charged;

i and j are integers selected from about 2 to about 3; and

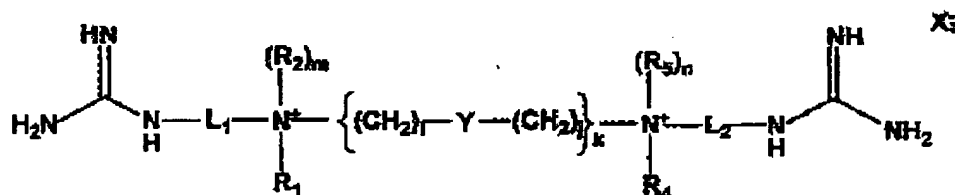
k is an integer selected from 1 to about 3.

47. (Currently amended). The compound as claimed in claim 46, which is:



48. (Canceled)

49. (Currently amended) A compound having the formula:



wherein

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally

substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

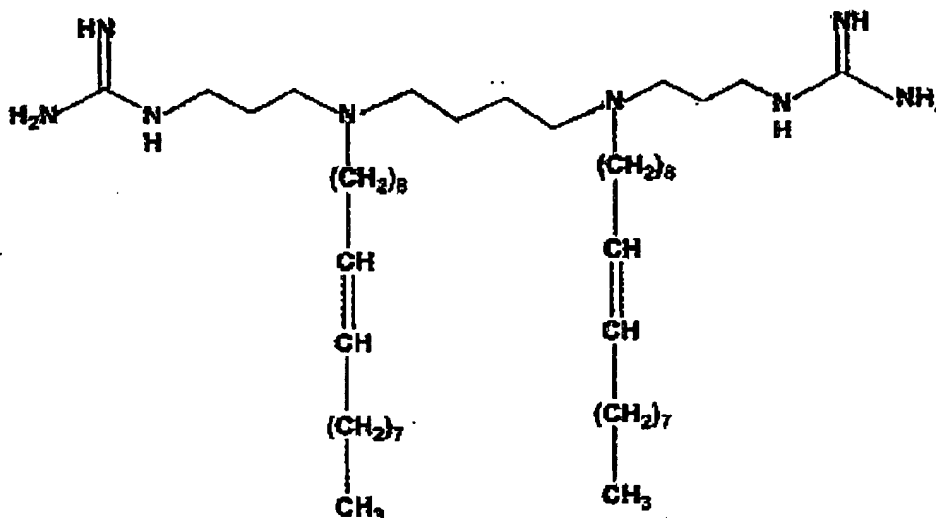
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

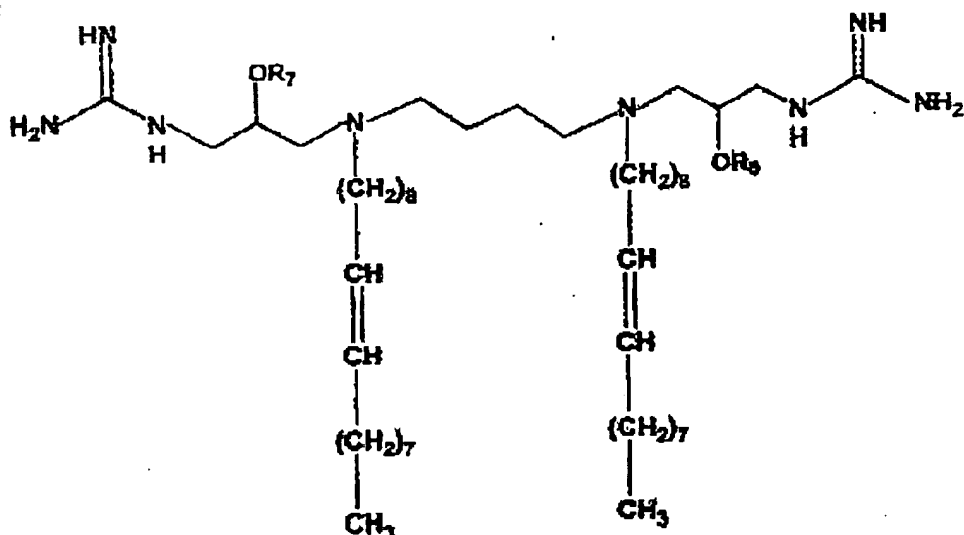
L₁ and L₂, independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH₂, O, S and NH.

50. (Currently amended) The compound as claimed in claim 49, which is:



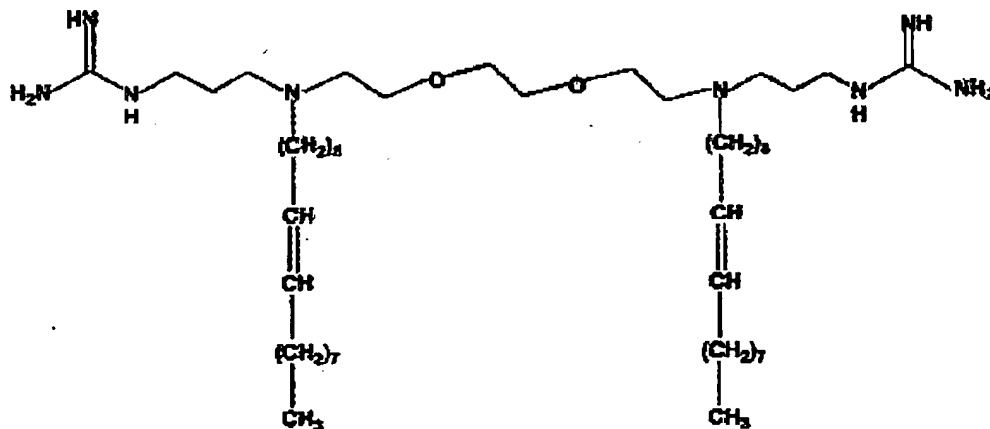
51. (Previously presented) A compound having the formula:



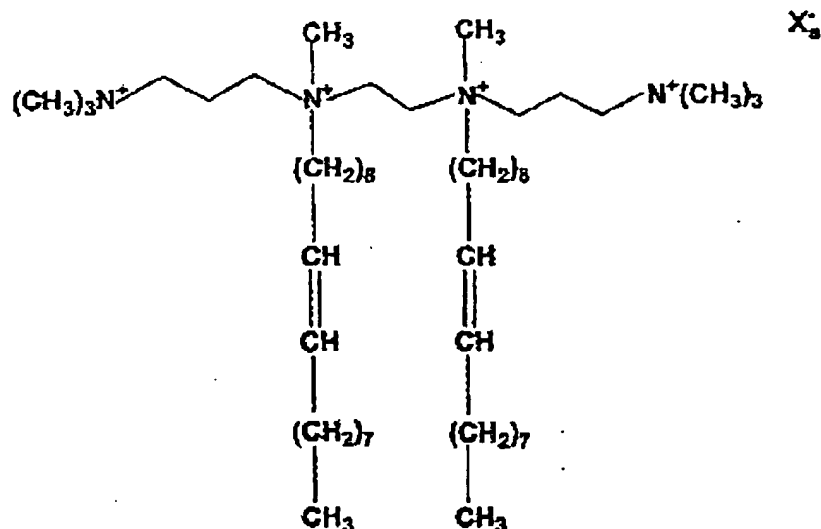
wherein R₇ and R₈ are independently H or a carbohydrate.

52. (Previously presented) The compound as claimed in claim 51, wherein R₇ and R₈ are H.

53. (Previously presented) A compound having the formula:



54. (Previously presented) A compound having the formula:

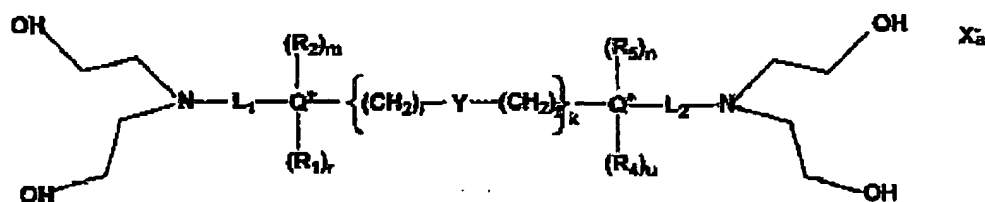


wherein

X^- is a physiologically acceptable anion; and

a is the number of positive charges in the compound divided by the valence of the anion.

55. (Currently amended) A compound having the formula:



wherein

Q is N;

X^- is a physiologically acceptable anion;

a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

R_1 and R_4 , independently of one another, are selected from the group consisting of H, $-(CH_2)_p-D-Z$, an alkyl group, an alkyl ether group, an alkenyl group, an aryl group, and an alkyl or alkyl ether group substituted by one or more

of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group, R_1 and R_4 may optionally be covalently linked with each other, to form a cyclic moiety; and at least one of R_1 and R_4 is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 8 to about 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of H, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

Z is selected from the group consisting of amine, spermyl, spermidyl, carboxyspermyl, guanidyl, spermidinyl, putricinyl, pyridyl, piperidinyl, pyrrolidinyl, aminoacid, peptidyl, diaminoalkyl, and polyamine;

D is N, O, S, or a bond;

i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

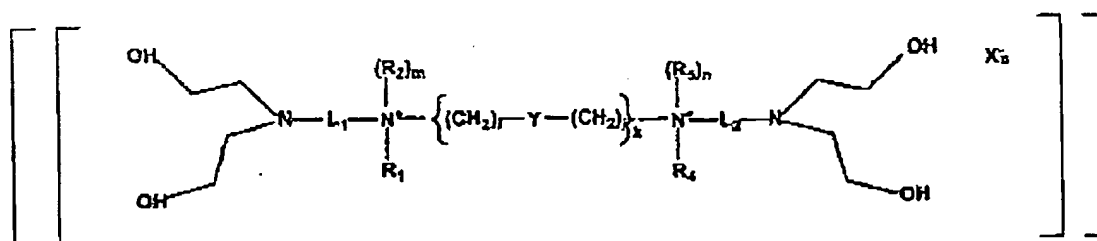
m, n, r and u are 0 or 1;

p is an integer from 1 to about 10;

L_1 and L_2 , independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH_2 , O, S and NH.

56. (Currently amended) [[A]] The compound as claimed in claim 55 having the formula:



wherein

~~X⁻ is a physiologically acceptable anion;~~

~~a is the number of positive charges in the compound divided by the valence of the anion;~~

R₁ and R₄, independently of one another, are straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl groups having from about 8 to about 24 carbon atoms [[:]]

~~R₂ and R₃, independently of one another, are selected from the group consisting of H, an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amino, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;~~

~~m and n are 0 or 1;~~

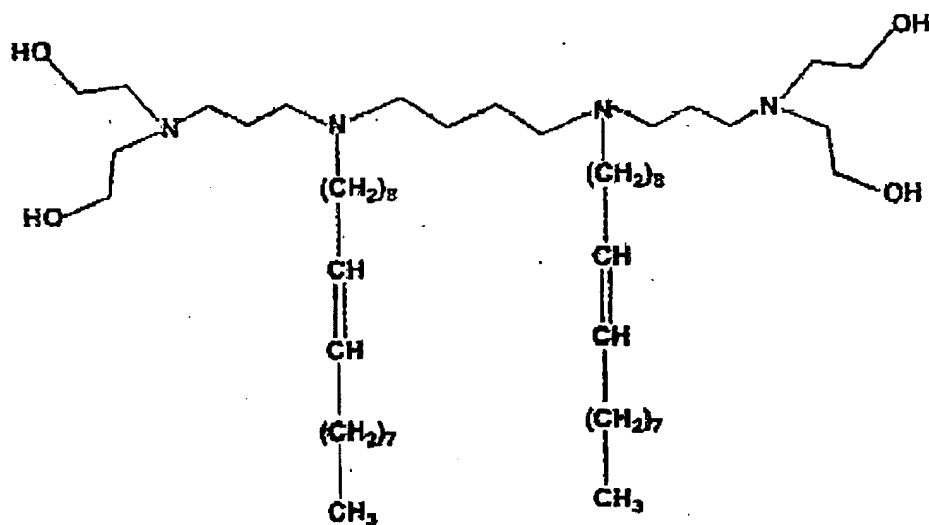
~~i and j are integers from about 2 to about 3;~~

~~k is an integer from 1 to about 3;~~

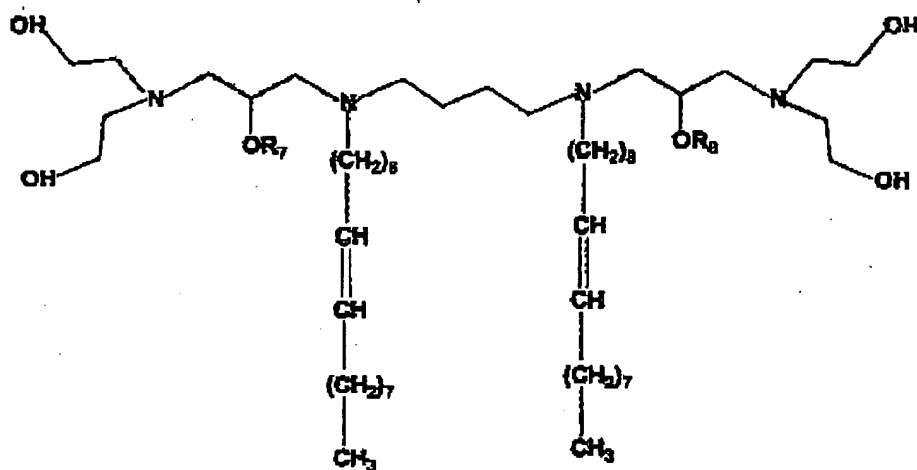
~~L₁ and L₂ independently from one another, are an alkylene or an alkylene ether; and~~

~~Y is selected from the group consisting of CH₂, O, S and NH.~~

57. (Previously presented) A compound having the formula:



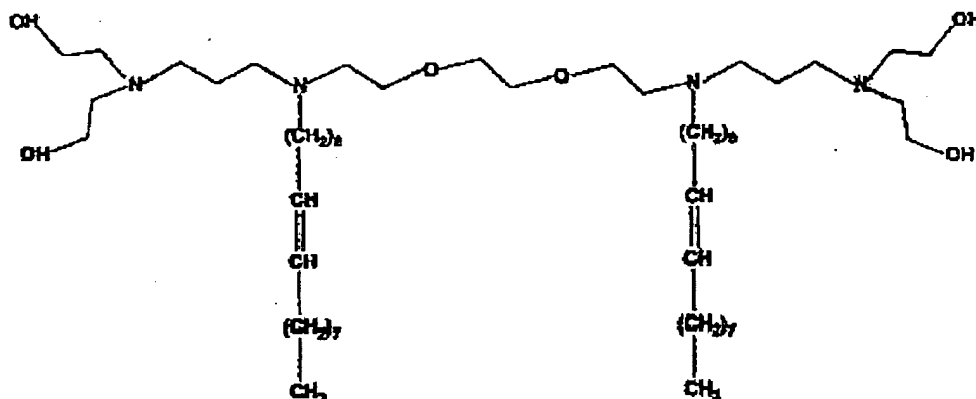
58. (Previously presented) A compound having the formula:



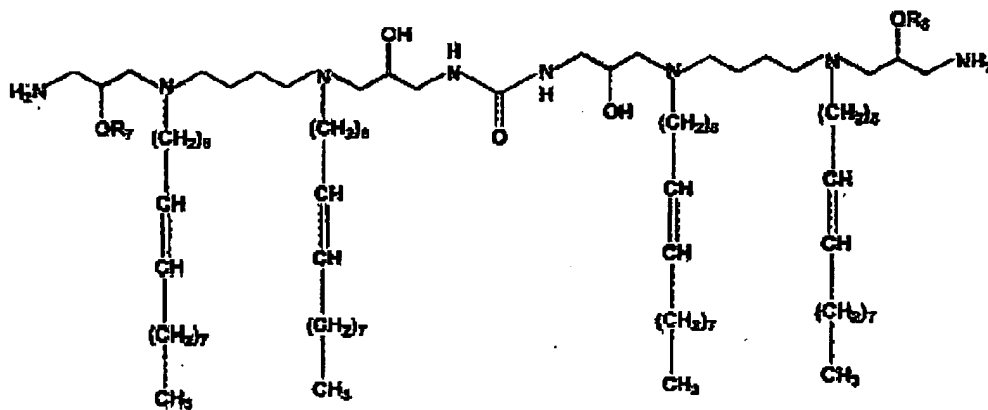
wherein R₇ and R₈ are independently H or a carbohydrate.

59. (Previously presented) The compound as claimed in claim 58, wherein R₇ and R₈ are H.

60. (Previously presented) A compound having the formula:



61. (Previously presented) A compound having the formula:

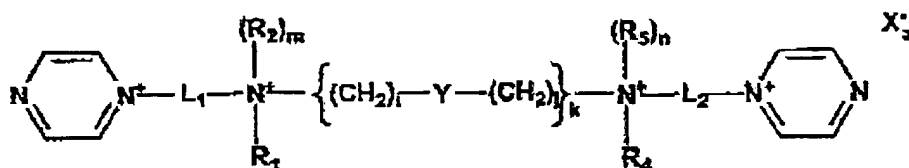


wherein R_7 and R_8 are independently H or a carbohydrate.

62. (Previously presented) The compound as claimed in claim 61, wherein R_7 and R_8 are H.

63. (Canceled)

64. (Currently amended) A compound having the formula:



wherein

X^- is a physiologically acceptable anion;

a is the number of positive charges in the compound divided by the valence of the anion;

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

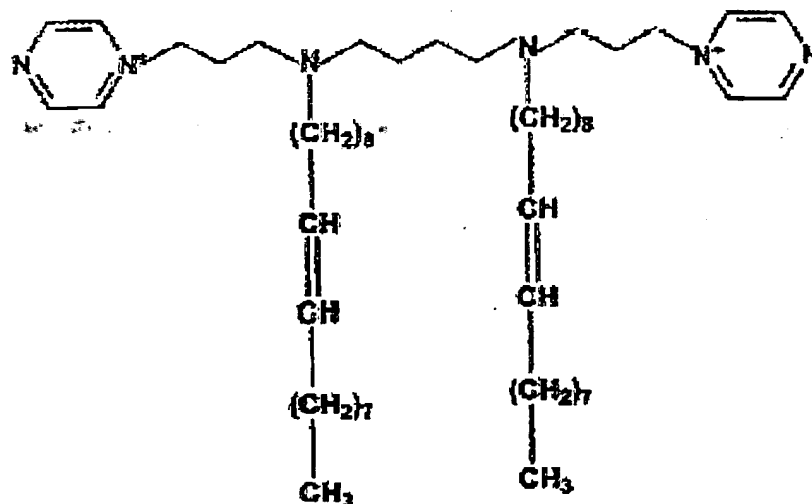
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

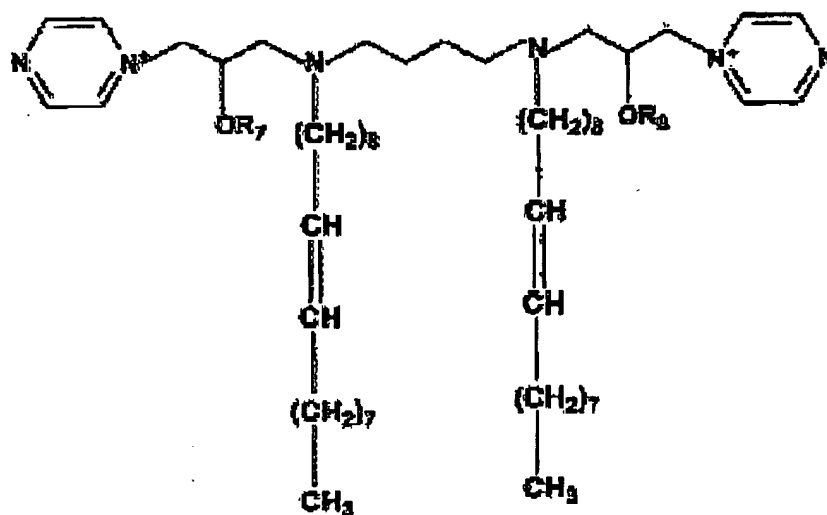
L_1 and L_2 , independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH_2 , O, S and NH.

65. (Currently amended) The compound as claimed in claim 64, which is:



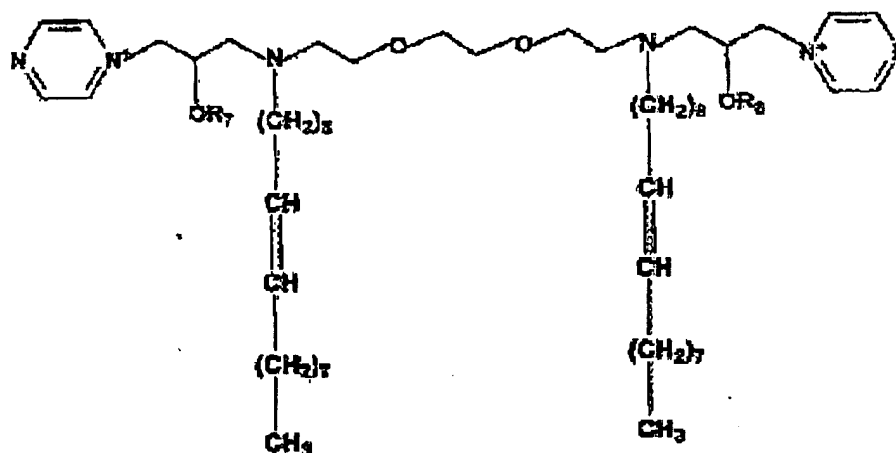
66. (Previously presented) A compound having the formula:



wherein R_7 and R_8 are independently H or a carbohydrate.

67. (Previously presented) The compound as claimed in claim 66, wherein R_7 and R_8 are H.

68. (Previously presented) A compound having the formula:

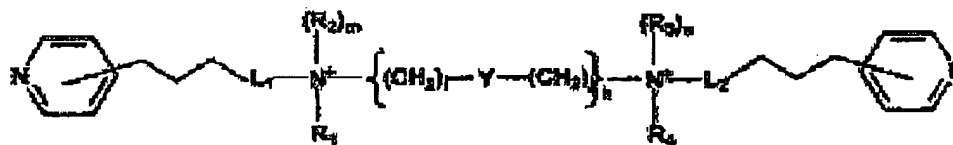


wherein R_7 and R_8 are independently H or a carbohydrate.

69. (Previously presented) The compound as claimed in claim 68, wherein R_7 and R_8 are H.

70. (Canceled)

71. (Currently amended) A compound having the formula:



wherein

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

R_2 and R_5 , independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a

polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

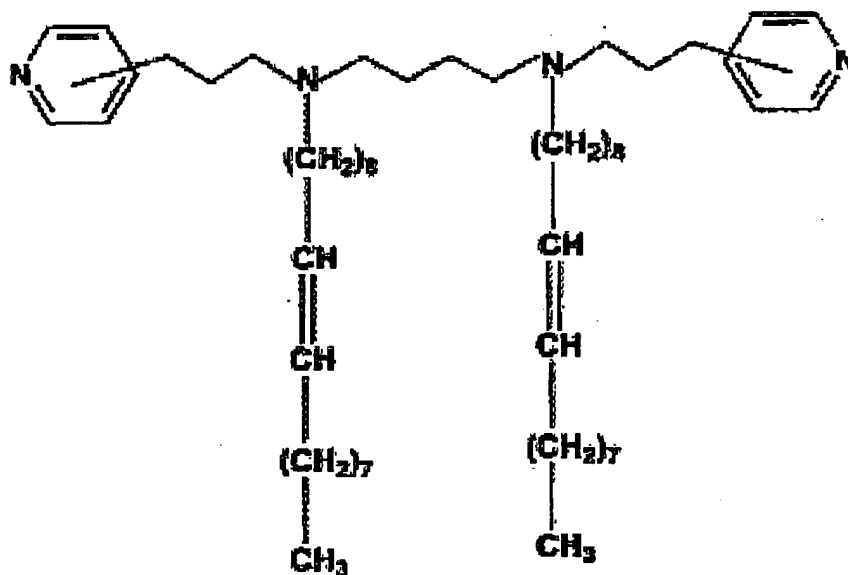
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

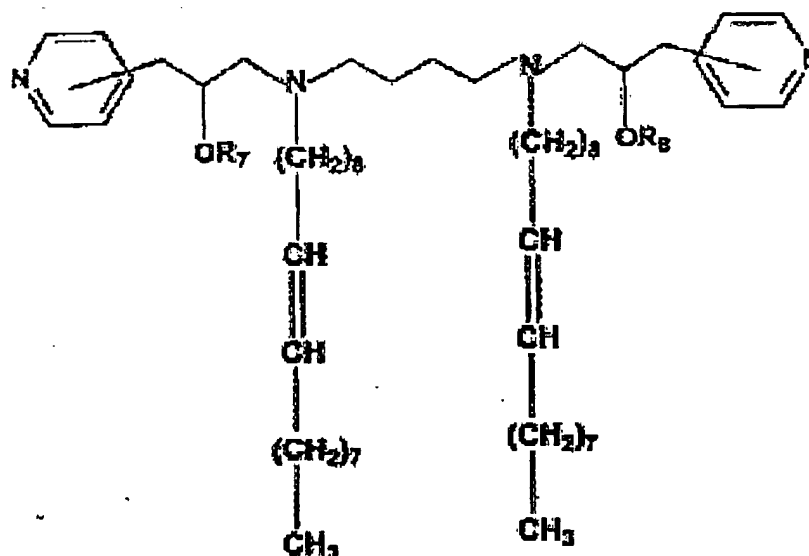
L₁ and L₂ independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH₂, O, S and NH.

72. (Currently amended) The compound as claimed in claim 71, which is:



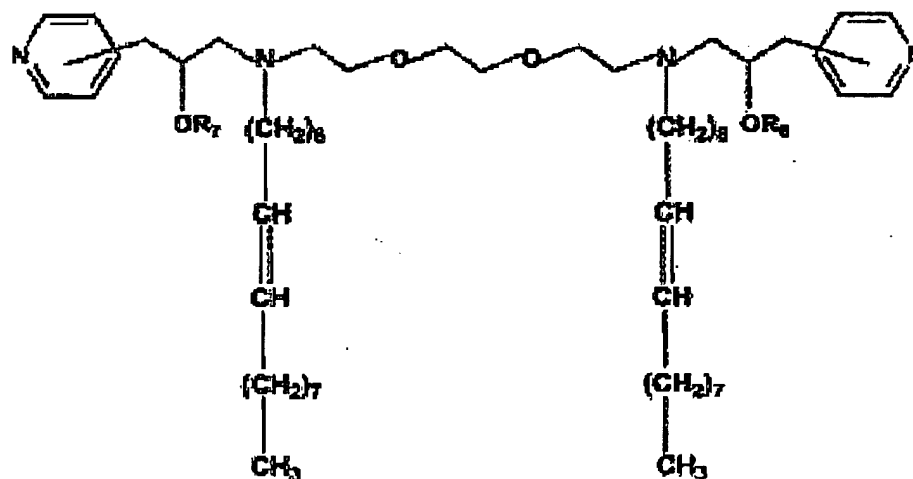
73. (Previously presented) A compound having the formula:



wherein R₇ and R₈ are independently H or a carbohydrate.

74. (Previously presented) The compound according to claim 73, wherein R₇ and R₈ are H.

75. (Previously presented) A compound having the formula:

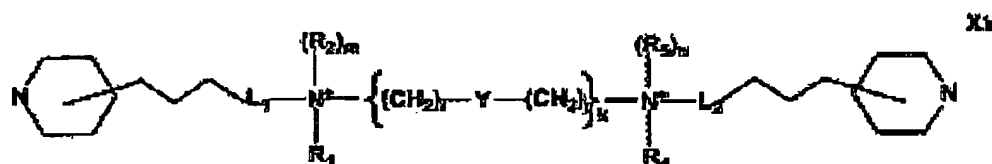


wherein R₇ and R₈ independently are H or a carbohydrate.

76. (Previously presented) The compound as claimed in claim 75, wherein R_7 and R_8 are H.

77. (Canceled)

78. (Currently amended) A compound having the formula:



wherein

X^- is a physiologically acceptable anion;

a is the number of positive charges in the compound divided by the valence of the anion;

each of R_1 and R_4 is a straight-chain, branched, or cyclic alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms;

R_2 and R_5 independently of one another, are selected from the group consisting of an alkenyl group, an aryl group, and an alkyl group optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group;

m and n are 0 or 1;

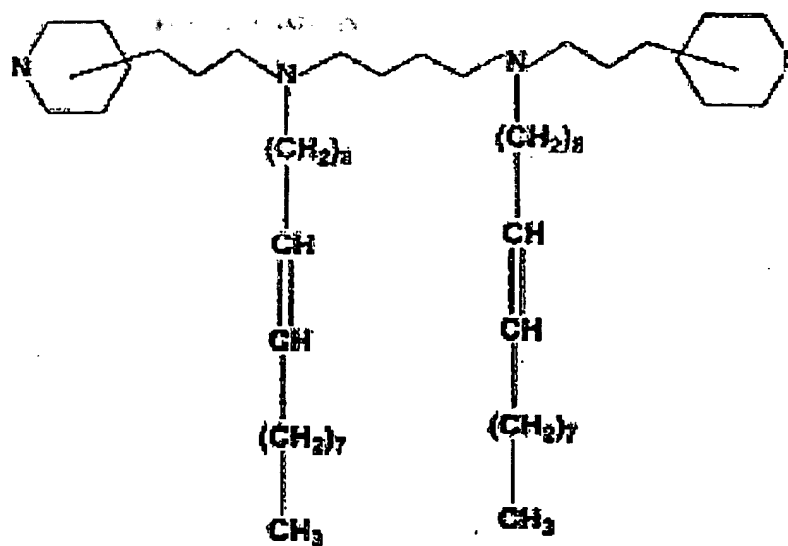
i and j are integers from about 2 to about 3;

k is an integer from 1 to about 3;

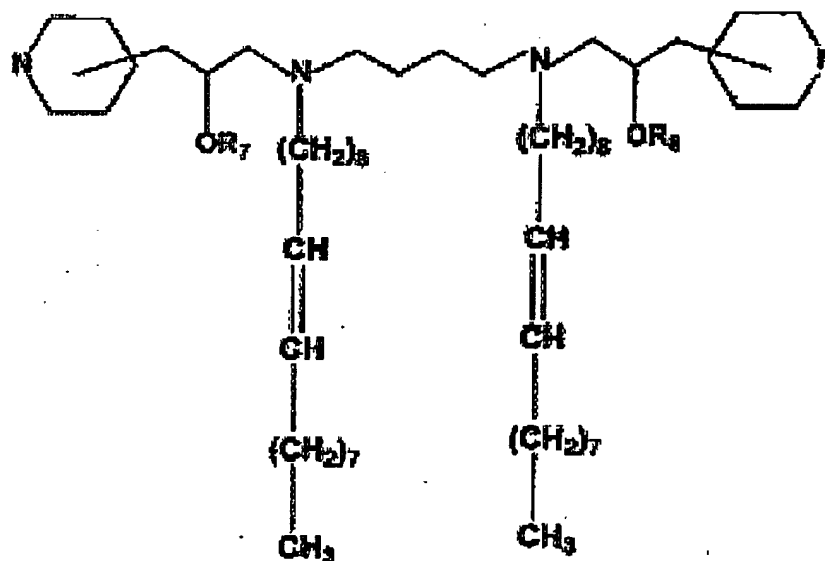
L_1 and L_2 , independently from one another, are an alkylene or an alkylene ether; and

Y is selected from the group consisting of CH_2 , O, S and NH.

79. (Previously presented) A compound having the formula:



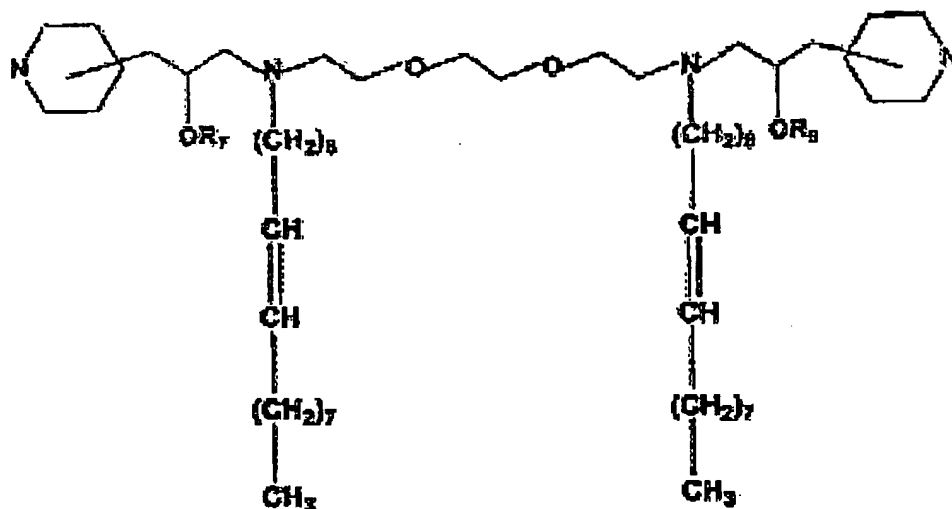
80. (Previously presented) A compound having the formula:



wherein R_7 and R_8 are independently H or a carbohydrate.

81. (Previously presented) The compound as claimed in claim 80, wherein R_7 and R_8 are H.

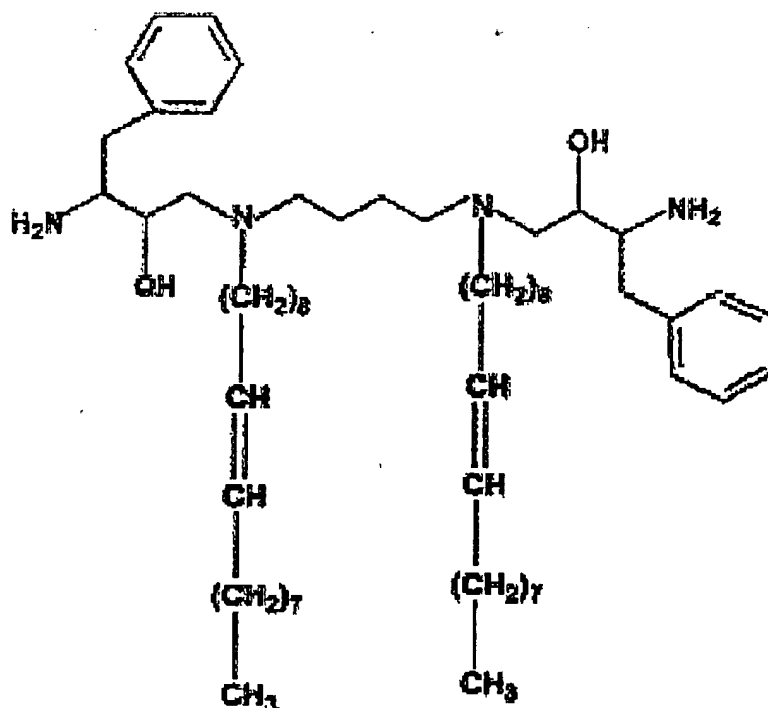
82. (Previously presented) A compound having the formula:



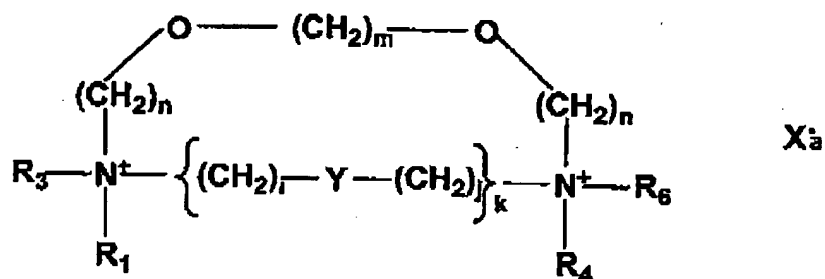
wherein R_7 and R_8 are independently H or a carbohydrate.

83. (Previously presented) The compound as claimed in claim 82, wherein R_7 and R_8 are H.

84. (Previously presented) A compound having the formula:



85. (Currently amended) A compound having the formula:



wherein

X^- is a physiologically acceptable anion;

a is the number of positive charges in the compound divided by the valence of the anion;

Y is selected from the group consisting of CH₂, an ether, a polyether, an amide, a polyamide, an ester, a sulfide, a urea, a thiourea, a guanidyl, a carbamoyl, a carbonate, a phosphate, a sulfate, a sulfoxide, an imine, a carbonyl, and a secondary amino group and wherein Y is optionally substituted by -X₁-L'-X₂-Z or -Z;

R₁, R₃, R₄, and R₆, independently of one another, are selected from the group consisting of H, -(CH₂)_p-D-Z, an alkyl group, an alkenyl group, an aryl group, an alkynyl group, and an alkyl ether group wherein any one of R₁, R₃, R₄, and R₆ are optionally substituted by one or more of an alcohol, an aminoalcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, an alkylthio, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least one of R₁, R₃, R₄, and R₆ is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from 6 to about 64 carbon atoms; and R₁, R₃, R₄, and R₆ may optionally be covalently linked with each other or with Y, to form a cyclic moiety;

Z is selected from the group consisting of amine, spermyl, carboxyspermyl, guanidyl, spermidyl, putricinyl, diaminoalkyl, pyridyl, piperidiny, pyrrolidiny, polyamine, amino acid, peptide, and protein;

X₁ and X₂, independently of one another, are selected from the group consisting of NH, O, S, alkylene, and arylene;

L' is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, alkylene ether, and polyether;

D is O, S, or a bond;

m and n are 0 or 1; and

i, j, k, l and p are integers from 1 to about 10.

86. (Previously presented) The compound as claimed in claim 85, wherein at least one of R₁ and R₄ is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms.

87. (Previously presented) The compound as claimed in claim 85, wherein the alkyl ether optionally substituted by one or more alcohol groups is a carbohydrate.

88. (Previously presented) The compound as claimed in claim 87, wherein the carbohydrate is selected from the group consisting of galactose, fructose, glucose, maltose, sucrose, cellobiose, lactose, mannose, glucopyranose, mannopyranose and galactopyranose.

89. (Previously presented) The compound as claimed in claim 85, wherein Y is selected from the group consisting of CH₂, an ether, a polyether, an amide, a polyamide, an ester, a sulfide, a urea, a thiourea, a guanidyl, a carbamoyl, a carbonate, and a secondary amino group.

90. (Previously presented) The compound as claimed in claim 89, wherein at least one of R₁ and R₄ is a straight-chain, branched, or cyclic alkyl, alkenyl, alkynyl or aryl group having from about 8 to about 24 carbon atoms.

91. (Previously presented) The compound as claimed in claim 89, wherein the alkyl ether optionally substituted by one or more alcohol groups is a carbohydrate.

92. (Previously presented) The compound as claimed in claim 91, wherein the carbohydrate is selected from the group consisting of galactose, fructose, glucose, maltose, sucrose, cellobiose, lactose, mannose, glucopyranose, mannopyranose and galactopyranose.

93-100. (Canceled)

101. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138.

102. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138 and at least one additional component selected from the group consisting of a cell, cells, a cell culture, a cell culture media, a neutral lipid, a nucleic acid, and a transfection enhancer.

103. (Canceled)

104. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138.

105. (Canceled)

106. (Canceled)

107. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138 and at least one additional component selected from the group consisting of a cell, cells, a cell culture medium, a nucleic acid, a transfection, enhancer and instructions for transfecting a cell or cells.

108. (Currently amended) A method for introducing a polyanion into a cell or cells, said method comprising forming a lipid aggregate from a positively charged compound of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138, contacting the lipid aggregate with a

polyanion to form a positively-charged polyanion-lipid aggregate complex and incubating the complex with a cell or cells.

109. (Currently amended) A method for introducing a biologically active substance into a cell, said method comprising forming a lipid aggregate of a compound of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, ~~89 and 111~~ or 138 and a biologically active substance and incubating the lipid aggregate with a cell or cell culture.

110. (Canceled)

111. (Previously presented) A compound which is:

N^1, N^4 -dipalmitoyl- N^1, N^4 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;
 N^1, N^4 -distearyl- N^1, N^4 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;
 N^1, N^4 -dilauryl- N^1, N^4 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminobutane;
 N^1, N^2 -dimyristyl- N^1, N^2 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;
 N^1, N^2 -dipalmityl- N^1, N^2 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;
 N^1, N^2 -dipalmitoyl- N^1, N^2 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;
 N^1, N^2 -distearyl- N^1, N^2 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;
 N^1, N^2 -dilauryl- N^1, N^2 -di-[2-hydroxy-3-(N-aminopropyl)]-diaminoethane;
 N^1, N^8 -dimyristyl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^8 -dipalmityl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^8 -dipalmitoyl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^8 -distearyl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^8 -dilauryl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^8 -dioleoyl- N^1, N^8 -di-[2-hydroxy-3-(N-aminopropyl)]-Jeffamine;
 N^1, N^4 -dimyristyl- N^1, N^4 -di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;
 N^1, N^4 -dipalmityl- N^1, N^4 -di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N¹,N⁴-dipalmitoyl-N¹,N⁴-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N¹,N⁴-distearyl-N¹,N⁴-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N¹,N⁴-dilauryl-N¹,N⁴-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminobutane;

N¹,N⁸-dimyristyl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N⁸-dipalmityl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N⁸-dipalmitoyl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N⁸-distearyl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N⁸-dilauryl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N⁸-dioleyl-N¹,N⁸-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-Jeffamine;

N¹,N²-dimyristyl-N¹,N²-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

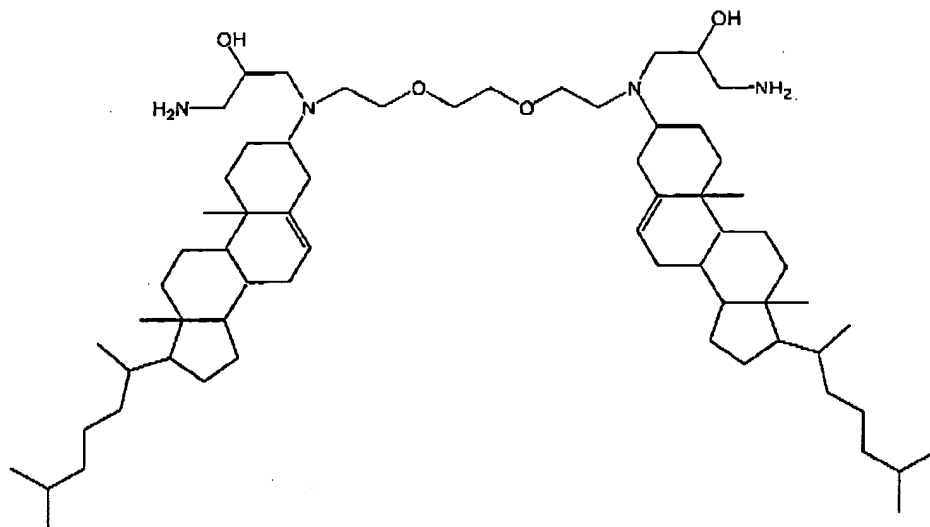
N¹,N²-dipalmityl-N¹,N²-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

N¹,N²-dipalmitoyl-N¹,N²-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane;

N¹,N²-distearyl-N¹,N²-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane; or

N¹,N²-dilauryl-N¹,N²-di-[2-hydroxy-3-(N-sperminecarboxamido)-aminopropyl]-diaminoethane.

112. (Previously presented) A compound which is:



113.-116. (Canceled)

117. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional lipid aggregating compound.

118. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one additional lipid aggregating compound, ~~where the additional lipid aggregating forming compound is selected from at least one of~~ DOPE, DOPC or cholesterol.

119. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~111~~ or 138 and at least one neutral lipid or at least one other cationic lipid.

120. (Currently amended) A composition comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one cationic lipid, ~~where the cationic lipid is selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.~~

121. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138.

122. (Currently amended) A kit comprising one or more compounds of any one of claims 1 claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating forming compound.

123. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one additional lipid aggregating forming compound, ~~where the additional lipid aggregating forming compound is selected from at least one of DOPE, DOPC or cholesterol.~~

124. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one neutral lipid or at least one other cationic lipid.

125. (Currently amended) A kit comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, ~~56~~, 64, 71, ~~75~~, 78, 85, ~~89~~ and ~~114~~ or 138 and at least one other cationic lipid, ~~where the cationic lipid is selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.~~

126. (Currently presented) A lipid aggregate comprising one or more ~~compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111~~ or 138 and at least one additional lipid aggregating forming compound.

127. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138 and at least one additional lipid aggregating forming compound, ~~where the additional lipid aggregating forming compound is selected from at least one of DOPE, DOPC or cholesterol.~~

128. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138 and at least one neutral lipid or at least one other cationic lipid.

129. (Currently amended) A lipid aggregate comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33, 35, 38, 41, 46, 49, 55, 56, 64, 71, 75, 78, 85, 89 and 111 or 138 and at least one other cationic lipid selected from the group consisting of DOSPA, DOTMA, DMRIE, DOTAP, DOGS and TM-TPS.

130. Canceled

131. Canceled

132. Canceled

133. (Currently amended) A kit comprising ~~the~~ a lipid aggregate of claim 128 comprising one or more compounds of any one of claims 12, 16, 21, 29, 32, 33,

35, 38, 41, 46, 49, 55, 64, 71, 78, 85, and 138 and at least one neutral lipid or at least one other cationic lipid.

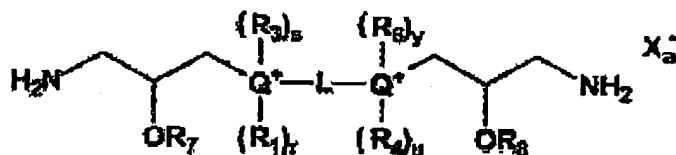
134. Canceled

135. (Currently amended) The compound of claim 12 wherein R_1 , R_3 , R_4 , and R_6 , independently of one another, are selected from the group consisting of H, and an alkyl group and at least two of R_1 , R_3 , R_4 , and R_6 , are straight-chain alkyl groups having from 8 to about 24 carbon atoms attached to each N.

136. (Currently amended) The compound of claim 135 wherein at least two of R_1 , R_3 , R_4 , and R_6 , are straight-chain alkyl groups having from 14 or 16 carbon atoms attached to each N.

137. (Canceled)

138. (New) A compound having the formula:



where:

Q is N;

L is a bivalent organic radical covalently linking each Q;

r, s, u and y are 1;

X^- is a physiologically acceptable anion;

a is the number of anions which is equal to the number of positive charges in the compound divided by the valence of the anion;

R_1 , R_3 , R_4 , and R_6 , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, an alkynyl group, and an

aryl group, wherein any one of R_1 , R_3 , R_4 , and R_6 are optionally substituted by one or more of an alcohol, an amine, an amide, an ether, a polyether, a polyamide, an ester, a mercaptan, a urea, a thiourea, a guanidyl, or a carbamoyl group, and at least two of R_1 , R_3 , R_4 , and R_6 , are straight-chain, branched, or cyclic alkyl, alkynyl, or alkenyl groups having from 8 to 24 carbon atoms attached to each N and R_1 , R_3 , R_4 and R_6 are optionally covalently linked with each other, and

R_7 and R_8 are independently H or a carbohydrate.

139. (New) The compound of claim 138 wherein R_1 , R_3 , R_4 , and R_6 , independently of one another, are selected from the group consisting of H, an alkyl group, an alkenyl group, or an alkynyl group.

140. (New) The compound of claim 138 wherein R_1 , R_3 , R_4 , and R_6 , independently of one another, are selected from the group consisting of H, and an alkyl group.

141. (New) The compound of claim 138 wherein R_7 and R_8 are H.

142 (New) The compound of claim 138 wherein two of R_1 , R_3 , R_4 , and R_6 are alkyl groups having 14 or 16 carbons.